



# **Welcome to NASA Applied Remote Sensing Training (ARSET) Webinar Series**

## **Introduction to Remote Sensing Data for Land Management**

**Course Dates: Every Monday, November 3- December 1  
Time: 12pm-1pm EDT**



# Course Instructors for Today

- ❑ Cindy Schmidt (ARSET)
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General inquiries about ARSET: Ana Prados (ARSET) [aprados@umbc.edu](mailto:aprados@umbc.edu)

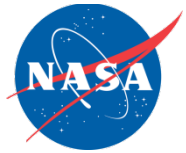



# Important Information

- ❑ Presentations and recorded links URL:
  - ❑ <http://arset.gsfc.nasa.gov/webinars>
- ❑ Certificate of Completion
  - ❑ Attend all 5 webinars
  - ❑ Assignments 1 and 2 – download from the ARSET land webinar website
- ❑ Post-Webinar Survey – today during last 15 minutes of webinar

# ARSET Land Resource Management

<http://arset.gsfc.nasa.gov/eco/webinars/>



**ARSET**  
Applied Remote Sensing Training

Earth Science Division   Applied Sciences   ASP Water Resources

DISASTERS   ECO FORECASTING   HEALTH & AIR QUALITY   WATER RESOURCES

### Eco Forecasting

▼ Eco Webinars

- Land Management, 11-14
- Intro to Data Products, Portals, and Tools
- Land Management, 05-14

[Eco Personnel](#)

### Upcoming Courses

**Ecoforecasting**  
**NASA Remote Sensing for Land Management**  
11/03/2014 to 12/01/2014

**Water Resources**  
**Water Quality Monitoring Using Remote Sensing Measurements**  
11/18/2014 to 12/02/2014

## NASA Remote Sensing for Land Management

11/03/2014 to 12/01/2014

Times: 12 PM - 1 PM Eastern US Time

This webinar course has five one-hour sessions on 3, 10, 17, 24, November and 1 December.

- 3 November: Overview of NASA Remote Sensing and Earth systems modeling data
- 10 November: Land Cover Mapping
- 17 November: Terrain Data
- 24 November: Change Detection
- 1 December: Web-tools for Data Access and Integration into GIS

Registration: [Webinar Registration](#)  
GIS: True  
Keywords: [Satellite Imagery](#), [Tools](#)  
Instruments: [Aqua](#), [Landsat](#), [Terra](#)

### Presentations and Recordings

Week	Date	Title	Presentation	Recording	Assignment
1	Nov. 3, 2014	Overview of NASA Remote Sensing and Earth systems modeling data	<a href="#">Week 1 Presentation.</a> <a href="#">Week 1 Presentation (Spanish)</a>	<a href="#">View Week 1 Recording</a>	<a href="#">Assignment 1</a>
2	Nov. 10, 2014	Land Cover Mapping.	<a href="#">Week 2 Presentation</a>	<a href="#">View Week 2 Recording</a>	N/A
3	Nov. 17, 2014	Terrain Data.	<a href="#">Week 3 Presentation</a>	<a href="#">View Week 3 Recording</a>	N/A



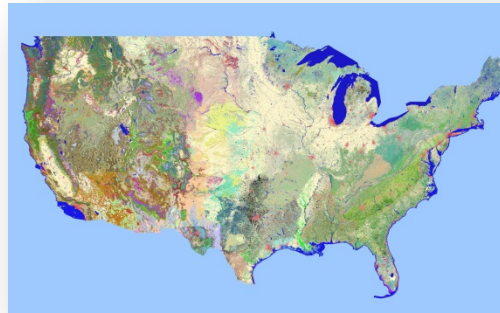
# Course Outline

## Week 1



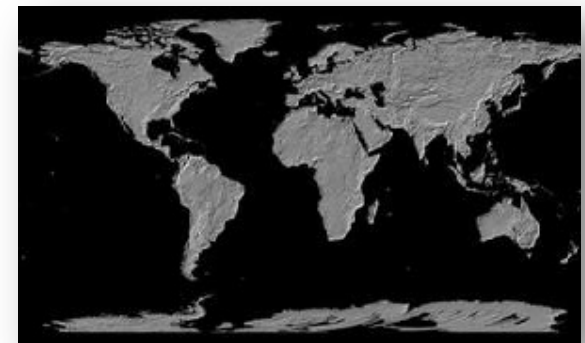
**Intro. & Background:  
Satellite Remote Sensing**

## Week 2



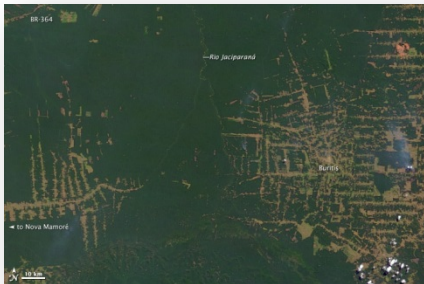
**Land Cover Mapping/  
Web tools for data  
access**

## Week 3



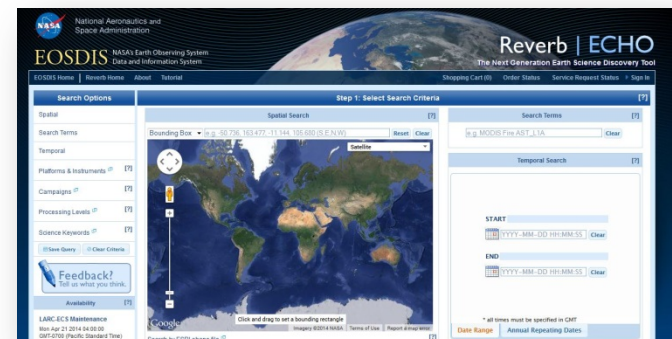
**Terrain**

## Week 4



**Change Detection**

## Week 5



**Web tools for data access**



# Outline

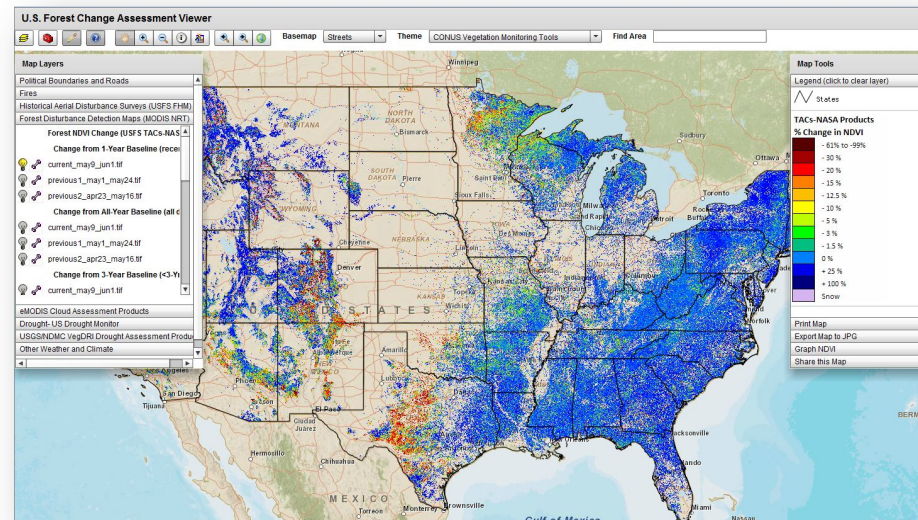
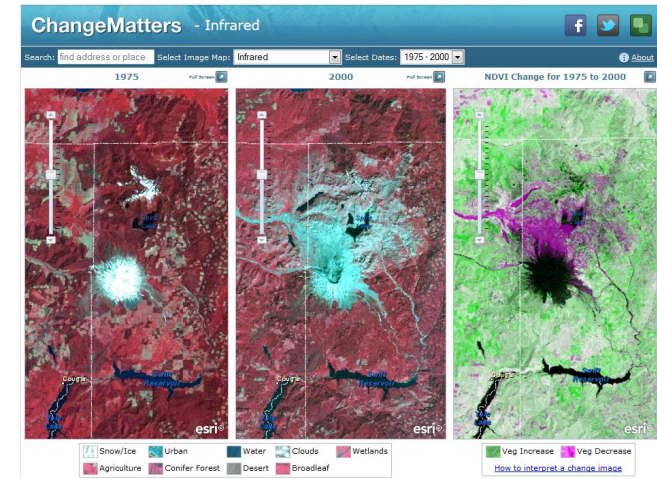
- ❑ Brief review of last week
- ❑ WELD Demo
  - ❑ Landsat Data products available
  - ❑ Download and Open in ArcGIS
    - Standard Imagery Band Combinations
- ❑ SEVIR Global
  - ❑ Regional Visualization and Monitoring System
  - ❑ Interactive Mapper
- ❑ DEVELOP
- ❑ Upcoming Wildfire Webinar
- ❑ Post-Webinar Survey



# Review of Week 4

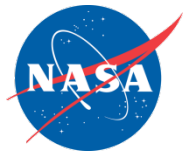
# Week 4

- Change Detection
  - Methods for Change Detection
    - Visual Analysis
    - Traditional Methods
    - LandTrendr
    - NDVI time series
      - Phenology and Drought Monitoring
  - Where to Obtain and Visualize Detection Datasets
    - NLCD
    - MODIS NDVI Phenology
    - FORWARN
    - Global Forest Change Portal
    - Worldview





# Web-Enabled Landsat Data



# WELD

- ❑ Web- Enabled Landsat Data (WELD)
  - ❑ Operated by the USGS with NASA
- ❑ Long-term and large area Landsat data archive
- ❑ Continental US and Alaska products
  - ❑ Available from 2003 to 2012
  - ❑ Annually, seasonally, monthly, and weekly
  - ❑ Single best Landsat pixel at each location for that time period selected.
- ❑ Globally
  - ❑ Available from 2009 to 2012
  - ❑ Annual and monthly
- ❑ Products processed on NASA Supercomputer
- ❑ Goal to produce global data from 1985 to 2010 in 5-year increments.



# WELD

- ❑ Continental US and Alaska products available at:  
<http://weld.cr.usgs.gov/index.php>
- ❑ Global products available at:  
<http://globalweld.cr.usgs.gov/index.php>
- ❑ Product Information and Documentation:  
<http://globalmonitoring.sdstate.edu/projects/weld/>



SERVIR “To Serve”





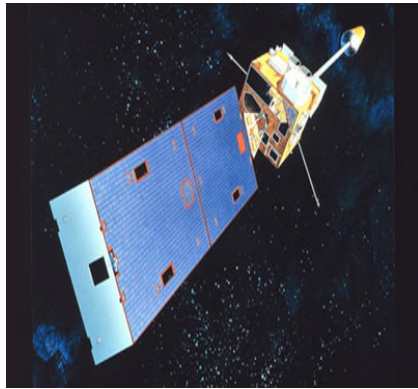
# SERVIR

- ❑ SEVIR is collaborative venture among the NASA Earth Science Division Applied Sciences Program, USAID, and worldwide partner institutions
  - ❑ Global network of regional partners dedicated to environmental management through the integration of Earth observations and geospatial technologies
  - ❑ Creates tools for use by stakeholders in developing countries
- ❑ Global Interactive Map
  - ❑ Combine map layers for decision-making
    - Socioeconomic data
    - Hydrology
    - Health
    - Climate
    - Agriculture...and more

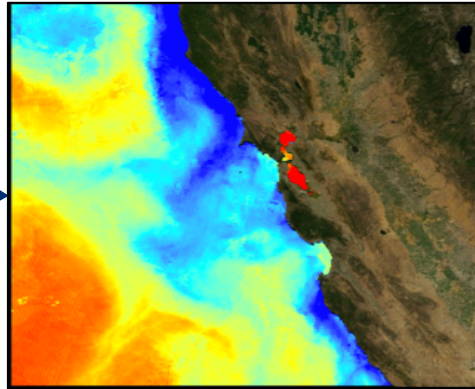
## Additional Information and Announcements

- ❑ NASA DEVELOP Internship Program
- ❑ Future wildfire webinar series
- ❑ Webinar survey

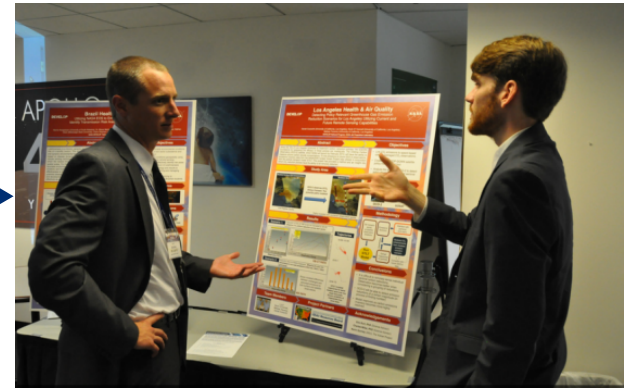
# NASA DEVELOP Internship Program



Acquire data



Process and analyze data



Present at scientific conference and hand-off data to project partners and communities

DEVELOP is a training and development internship enabling students and young professionals to learn about Earth science and develop prototype applications.

Advisors from NASA and partner organizations assist students (high school through graduate school) to apply Earth science in hands-on projects with state, local and tribal governments. DEVELOP addresses needs for long-term capabilities within the workforce to use Earth science results in decision making.



# NASA DEVELOP Internship Program

- ❑ Training and development internship
- ❑ 9-10 weeks
- ❑ Use NASA data to solve real world problems
- ❑ Student-run student-led
- ❑ Field work, presentations, and proceedings papers



Summer 2014 American Samoa Oceans Team



Adam McClure presenting at ASPRS



GRACE team touring groundwater replenishment system



# ARSET Wildfire Webinar

- ❑ Offered in collaboration with Idaho State University, Idaho NASA Space Grant Consortium and NASA Goddard
- ❑ Webinar series will be offered Spring 2015 and possibly again in September 2015.
- ❑ 3-day in-person workshop to be held at Idaho State University in Boise, Idaho, October 2015



# ARSET Wildfire Webinar

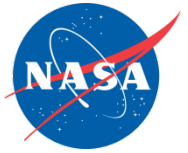
- ❑ Webinars may cover:
  - ❑ Overview of satellite remote sensing
  - ❑ Overview of fire-related RS platforms and products:
    - Landsat, MODIS, MERRA, SMAP
    - NDVI, fPAR, NBR, NPP
    - Early detection
  - ❑ Pre- and post-fire assessment/planning
  - ❑ Fire behavior and severity



Image by Jeff Schmaltz, LANCE/EOSDIS Rapid Response

August 2013 MODIS image of Rim Fire near Yosemite National Park, California

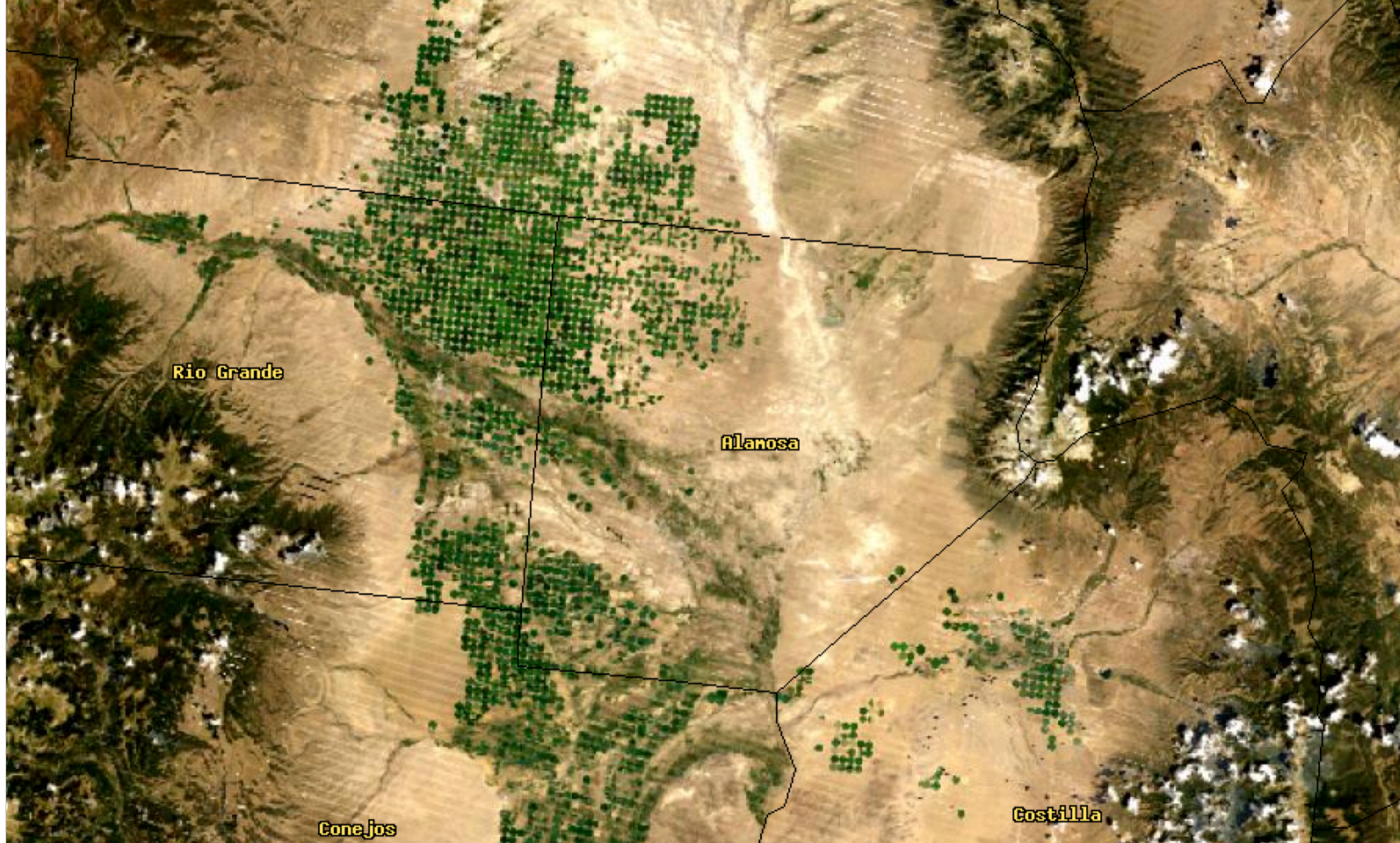
# ARSET Land Management Survey



- ❑ See link in Q&A
- ❑ Link will also be emailed to all participants
- ❑ We appreciate your feedback as we aim to improve our webinars!

## Cropland in central Colorado

Taken from  
June 2012,  
from the  
NASA  
WELD  
website.



# Thank You!!

**Cindy Schmidt and Amber Kuss**  
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